

SEQUENCE LISTING

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			ggg Gly													2471

210 215 220

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					acc Thr											2711
					cgt Arg											2759
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					ggg Gly											2855
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	-		-		gtc Val			_	-							2999
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					gcc Ala											3095
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ctg tat Leu Tyr															4295	
ata aco	Lys														4343	
acg ago Thr Sei															4391	
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						gcg Ala										4631
						gcc Ala 950										4679
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	Asp					tat Tyr					Ala					4967
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				Āla		ctc Leu			Gly	-		_	_	Gly	_	5063
			Ala			cgt Arg		His					Glu			5111
		Trp				ctg Leu 1110	Ile					Arg				5159
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cta Leu	aga Arg	gat Asp 1170	Val	tgg Trp	gat Asp	tgg Trp	ata Ile 1175	Cys	acg Thr	gtg Val	ttg Leu	act Thr 1180	Asp	ttc Phe	aag Lys	5351
acc Thr	tgg Trp 1185	Leu	cag Gln	tcc Ser	aag Lys	ctc Leu 1190	Leu	ccg Pro	cga Arg	ttg Leu	ccg Pro 1195	Gly	gtc Val	ccc Pro	ttc Phe	5399
ttc Phe 1200	Ser	tgt Cys	caa Gln	cgt Arg	ggg Gly 1205	Tyr	aag Lys	gga Gly	gtc Val	tgg Trp 121(Arg	ggc Gly	gac Asp	ggc Gly	atc Ile 1215	5447
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		Leu		ggg Gly			Leu					Glu				5879

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ccc atc aat gca Pro Ile Asn Ala 163	Leu Ser Asn Ser	ttg ctc cgt cac Leu Leu Arg His 1640	cac aac ttg gtc His Asn Leu Val 1645	6743
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2035 2040 2045

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	Ala				cat His 2085	Ser					Glu					8087
					aaa Lys)					Pro					Arg	8135
				Ser	gtc Val				Leu					Gly		8183
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	Phe				tac Tyr 2165	Ser					Tyr					8327
					tgg Trp)					Leu					Val	8375
				Tyr	cta Leu				Arg	tga *	acgg	ggag	gct a	aaca	actcca	8428
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75

70

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					agc Ser											2857	
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					caa Gln											3145	
					ggt Gly											3193	
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					acc Thr											3289	
					gac Asp											3337	
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755 760 765

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gat att ttg gca Asp Ile Leu Ala	ggt tat gga Gly Tyr Gly 1045	gca ggg gtg Ala Gly Val 1050	gca ggc gcg ctc Ala Gly Ala Leu)	gtg gcc Val Ala 1055	4969
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		His Val Gly	cca ggg gag ggg Pro Gly Glu Gly 1100	J -	5113
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Gln Ile Leu Ser	Ser Leu Thr	Ile Thr Gln	ctg ctg aag agg Leu Leu Lys Arg 1150	Leu His	5257
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		Phe					Tyr					tgc Cys)				5593
	Ala					Arg					Val	gct Ala				5641
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	Leu					Leu					Glu	ccg Pro				5881
					Leu					His		acg Thr			Thr	5929
				Leu					Pro			ttg Leu		Ser		5977
			Gln					Ser				aca Thr 1405	Cys			6025
		Āsp					Asp					aac Asn)				6073
	Gln					Asn					Glu	tca Ser				6121
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			g atg tcc tac aca r Met Ser Tyr Thr 1615	Trp
	Ile Thr Pro		g gaa acc aag ctg u Glu Thr Lys Leu 1630	
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gac Asp 1745	Thr	acc Thr	atc Ile	atg Met	gca Ala 1750	Lys	aat Asn	gag Glu	gtt Val	ttc Phe 1755	Cys	gtc Val	caa Gln	cca Pro	gag Glu 1760	7081
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gtt Val	cgt Arg	gtg Val	tgc Cys 1780	Glu	aaa Lys	atg Met	gcc Ala	ctt Leu 1785	Tyr	gat Asp	gtg Val	gtc Val	tcc Ser 1790	acc Thr	ctc Leu	7177
			Val					Tyr					Ser	cct Pro		7225
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		Ala					Thr					Asn		ctc Leu		7513

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Cys Tyr Leu Lys 1905	Ala Ala Ala 1910	Ala Cys Arg	Ala Ala Lys 1915	Leu Gln Asp 1920	
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gcg ggg acc caa Ala Gly Thr Gln 194	Glu Asp Glu	gcg agc cta Ala Ser Leu 1945	Arg Ala Phe	acg gag gct Thr Glu Ala 1950	7657
atg act aga tac Met Thr Arg Tyr 1955	tct gcc ccc Ser Ala Pro	cct ggg gac Pro Gly Asp 1960	ccg ccc aaa Pro Pro Lys 1965	Pro Glu Tyr	7705
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ccc ctt gcg cgg Pro Leu Ala Arg	gct gcg tgg Ala Ala Trp 2005	gag aca gct Glu Thr Ala 2010	Arg His Thr	cca gtc aat Pro Val Asn 2015	7849
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cgg gcc aga agt Arg Ala Arg Ser 2115				Gly Arg Ala	8185

gcc act tgt ggc aag tac ctc ttc a Ala Thr Cys Gly Lys Tyr Leu Phe 2 2130 2135		3233
aaa ctc act cca atc ccg gct gcg t Lys Leu Thr Pro Ile Pro Ala Ala S 2145 2150	tcc cag ttg gat tta tcc agc tgg Ser Gln Leu Asp Leu Ser Ser Trp 2155 2160	3281
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gcc cga ccc cgc tgg ttc atg tgg t Ala Arg Pro Arg Trp Phe Met Trp (8377
gta ggc atc tat cta ctc ccc aac c Val Gly Ile Tyr Leu Leu Pro Asn 2 2195 2200	094 094 4099994900 4444	8427
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<221> VARIANT <222> 1489 <223> Xaa is Leu		
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Leu Ile Trp Trp Leu Gln Tyr Phe 3 35 40 Gln Val Trp Ile Pro Pro Leu Asn V	25 30 Ile Thr Arg Ala Glu Ala His Leu 45 Val Arg Gly Gly Arg Asp Ala Val	
20	25 30 Ile Thr Arg Ala Glu Ala His Leu 45 Val Arg Gly Gly Arg Asp Ala Val 60 Pro Glu Leu Ile Phe Thr Ile Thr	
20	25 30 Ile Thr Arg Ala Glu Ala His Leu	
20	25 30 Ile Thr Arg Ala Glu Ala His Leu 45 Val Arg Gly Gly Arg Asp Ala Val 60 Pro Glu Leu Ile Phe Thr Ile Thr 75 80 Pro Leu Met Val Leu Gln Ala Gly 90 95 Arg Ala His Gly Leu Ile Arg Ala	
20	25 30 Ile Thr Arg Ala Glu Ala His Leu 45 Val Arg Gly Gly Arg Asp Ala Val 60 Pro Glu Leu Ile Phe Thr Ile Thr 75 80 Pro Leu Met Val Leu Gln Ala Gly 90 Arg Ala His Gly Leu Ile Arg Ala 105	

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Val	Ser	Ala 195	Arg	Arg	Gly	Arg	Glu 200	Ile	His	Leu	Gly	Pro 205	Ala	Asp	Ser	
Leu	Glu 210	Gly	Gln	Gly	Trp	Arg 215	Leu	Leu	Ala	Pro	Ile 220	Thr	Ala	Tyr	Ser	
Gln 225	Gln	Thr	Arg	Gly	Leu 230	Leu	Gly	Cys	Ile	Ile 235	Thr	Ser	Leu	Thr	Gly 240	
	Asp	Arg	Asn	Gln 245	Val	Glu	Gly	Glu	Val 250	Gln	Val	Val	Ser	Thr 255	Ala	
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Tyr	His	Gly 275		Gly	Ser	Lys	Thr 280		Ala	Gly	Pro	Lys 285		Pro	Ile	
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Pro 305		Gly	Ala	Arg	Ser 310		Thr	Pro	Cys	Thr 315	Cys	Gly	Ser	Ser	Asp 320	
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Lys	Gly	Ser 355		Gly	Gly	Pro	Leu 360		Cys	Pro	Ser	Gly 365		Ala	Val	
Gly	Ile 370		Arg	Ala	Ala	Val 375		Thr	Arg	Gly	Val 380		Lys	Ala	Val	
Asp 385	-	Val	Pro	Val	Glu 390		Met	Glu	Thr	Thr 395	Met	Arg	Ser	Pro	Val 400	
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Asp	Ser	Thr 515		Ile	Leu	Gly	Ile 520		Thr	Val	Leu	Asp 525		Ala	Glu	
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Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp
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Val Val Ile	Leu Asp Ser 1445	Phe Glu Pro	Leu Gln Ala 1450		Asp Glu 1455
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Glu Leu Ala Thr Lys Thr Phe Gly Ser Ser Glu Ser Ser Ala Val Asp
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Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp
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Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser
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Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg
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gtc t Val S																2425	•
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1300 1305 1310

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965 970 975

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		gtt gct ggg Val Ala Gly 120				2185
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		gcc cac gcg Ala His Ala				2281
		ttc tct gat Phe Ser Asp				2329

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cgg Arg	gac Asp	agg Arg	aac Asn	cag Gln 245	gtc Val	gag Glu	ggg Gly	gag Glu	gtc Val 250	caa Gln	gtg Val	gtc Val	tcc Ser	acc Thr 255	gca Ala	2569
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	gac Asp															3241
	atc Ile															3289
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	tcg Ser															3385
	gct Ala 530															3433
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gcg ata Ala Ile															4777
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290 295 300

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atggctctcc to tatgggatct go aaacgtctag go commet Asp Ar 1 ctg ata ctc Leu Ile Leu ctc ata tgg Leu Ile Trp 35 caa gtg tgg Gln Val Trp 50 atc ctc ctc Ile Leu Leu 65 aaa atc ttg Lys Ile Leu ata acc aaa	ttg acc t Leu Thr L 20 tgg tta c Trp Leu G atc ccc c Ile Pro P acg tgc g Thr Cys A ctc gcc a Leu Ala I 85 gtg ccg t	tcaacaagge ctcggtgcae ccacggggae gca gca te Ala Ala Se tg tca ccg eu Ser Pro aa tat ttt ln Tyr Phe 40 cc ctc aac ro Leu Asn 55 cg atc cac la Ile His 70 ta ctc ggt le Leu Gly ac ttc gtg	g gctgaaggat c atgctttaca c gtggttttcc cg tgc gga g er Cys Gly G 10 cac tat aag His Tyr Lys 25 atc acc agg Ile Thr Arg gtt cgg ggg Val Arg Gly cca gag cta Pro Glu Leu 75 cca ctc atg Pro Leu Met 90 cgc gca cac	gcccagaagg tgtgtttagt tttgaaaaac gc gcg gtt ly Ala Val ctg ttc ct Leu Phe Le	taccccatty cgaggttaaa acgataatac ttc gta ggt Phe Val Gly 15 c gct agg u Ala Arg 0 a cac ttg a His Leu t gcc gtc p Ala Val c atc acc r Ile Thr 80 g gct ggt n Ala Gly 95 t cgt gca	1680 1740 1800 1849 1897 1945 1993
atggctctcc to tatgggatct go aaacgtctag go commet Asp Ar 1 ctg ata ctc Leu Ile Leu ctc ata tgg Leu Ile Trp 35 caa gtg tgg Gln Val Trp 50 atc ctc ctc Ile Leu Leu 65 aaa atc ttg Lys Ile Leu	ttg acc t Leu Thr L 20 tgg tta c Trp Leu G atc ccc c Ile Pro P acg tgc g Thr Cys A ctc gcc a Leu Ala I 85 gtg ccg t	tcaacaagge ctcggtgcae ccacggggae gca gca te Ala Ala Se tg tca ccg eu Ser Pro aa tat ttt ln Tyr Phe 40 cc ctc aac ro Leu Asn 55 cg atc cac la Ile His 70 ta ctc ggt le Leu Gly ac ttc gtg	g gctgaaggat c atgctttaca c gtggttttcc cg tgc gga g er Cys Gly G 10 cac tat aag His Tyr Lys 25 atc acc agg Ile Thr Arg gtt cgg ggg Val Arg Gly cca gag cta Pro Glu Leu 75 cca ctc atg Pro Leu Met 90 cgc gca cac	gcccagaagg tgtgtttagt tttgaaaaac gc gcg gtt ly Ala Val ctg ttc ct Leu Phe Le	taccccatty cgaggttaaa acgataatac ttc gta ggt Phe Val Gly 15 c gct agg u Ala Arg 0 a cac ttg a His Leu t gcc gtc p Ala Val c atc acc r Ile Thr 80 g gct ggt n Ala Gly 95 t cgt gca e Arg Ala	1680 1740 1800 1849 1897 1945 1993

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acg Thr	gct Ala 530	gga Gly	gcg Ala	cga Arg	ctc Leu	gtc Val 535	gtg Val	ctc Leu	gcc Ala	acc Thr	gct Ala 540	acg Thr	cct Pro	ccg Pro	gga Gly	3433
tcg Ser 545	gtc Val	acc Thr	gtg Val	cca Pro	cat His 550	cca Pro	aac Asn	atc Ile	gag Glu	gag Glu 555	gtg Val	gct Ala	ctg Leu	tcc Ser	agc Ser 560	3481
act Thr	gga Gly	gaa Glu	atc Ile	ccc Pro 565	ttt Phe	tat Tyr	ggc Gly	aaa Lys	gcc Ala 570	atc Ile	ccc Pro	atc Ile	gag Glu	acc Thr 575	atc Ile	3529
aag Lys	ggg Gly	ggg Gly	agg Arg 580	cac His	ctc Leu	att Ile	ttc Phe	tgc Cys 585	cat His	tcc Ser	aag Lys	aag Lys	aaa Lys 590	tgc Cys	gat Asp	3577
gag Glu	ctc Leu	gcc Ala 595	gcg Ala	aag Lys	ctg Leu	tcc Ser	ggc Gly 600	ctc Leu	gga Gly	ctc Leu	aat Asn	gct Ala 605	gta Val	gca Ala	tat Tyr	3625
tac Tyr	cgg Arg 610	ggc Gly	ctt Leu	gat Asp	gta Val	tcc Ser 615	gtc Val	ata Ile	cca Pro	act Thr	agc Ser 620	gga Gly	gac Asp	gtc Val	att Ile	3673
gtc Val 625	gta Val	gca Ala	acg Thr	gac Asp	gct Ala 630	cta Leu	atg Met	acg Thr	ggc Gly	ttt Phe 635	acc Thr	ggc Gly	gat Asp	ttc Phe	gac Asp 640	3721
tca Ser	gtg Val	atc Ile	gac Asp	tgc Cys 645	aat Asn	aca Thr	tgt Cys	gtc Val	acc Thr 650	cag Gln	aca Thr	gtc Val	gac Asp	ttc Phe 655	agc Ser	3769
						att Ile										3817
gtg Val	tca Ser	cgc Arg 675	tcg Ser	cag Gln	cgg Arg	cga Arg	ggc Gly 680	agg Arg	act Thr	ggt Gly	agg Arg	ggc Gly 685	agg Arg	atg Met	ggc Gly	3865

att Ile	tac Tyr 690	agg Arg	ttt Phe	gtg Val	act Thr	cca Pro 695	gga Gly	gaa Glu	cgg Arg	ccc Pro	tcg Ser 700	ggc Gly	atg Met	ttc Phe	gat Asp	3913
	tcg Ser															3961
	acg Thr															4009
	ggg															4057
	aca Thr															4105
	gca Ala 770															4153
	gcc Ala															4201
tgt Cys	ctc Leu	ata Ile	cgg Arg	cta Leu 805	aag Lys	cct Pro	acg Thr	ctg Leu	cac His 810	ggg Gly	cca Pro	acg Thr	ccc Pro	ctg Leu 815	ctg Leu	4249
tat Tyr	agg Arg	ctg Leu	gga Gly 820	gcc Ala	gtt Val	caa Gln	aac Asn	gag Glu 825	gtt Val	act Thr	acc Thr	aca Thr	cac His 830	ccc Pro	ata Ile	4297
acc Thr	aaa Lys	tac Tyr 835	atc Ile	atg Met	gca Ala	tgc Cys	atg Met 840	tcg Ser	gct Ala	gac Asp	ctg Leu	gag Glu 845	gtc Val	gtc Val	acg Thr	4345
	acc Thr 850															4393
	ctg Leu															4441
	agg Arg															4489
	gag Glu															4537

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tgg cgg acc ctc gaa gcc ttc tgg gcg aag cat atg tgg aat ttc atc Trp Arg Thr Leu Glu Ala Phe Trp Ala Lys His Met Trp Asn Phe Ile 945 950 955 960	4681
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gcg ata gca tca ctg atg gca ttc aca gcc tct atc acc agc ccg ctc Ala Ile Ala Ser Leu Met Ala Phe Thr Ala Ser Ile Thr Ser Pro Leu 980 985 990	4777
acc acc caa cat acc ctc ctg ttt aac atc ctg ggg gga tgg gtg gcc Thr Thr Gln His Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala 995 1000 1005	4825
gcc caa ctt gct cct ccc agc gct gct tcc gct ttc gta ggc gcc ggc Ala Gln Leu Ala Pro Pro Ser Ala Ala Ser Ala Phe Val Gly Ala Gly 1010 1015 1020	4873
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gat att ttg gca ggt tat gga gca ggg gtg gca ggc gcg ctc gtg gcc Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala 1045 1050 1055	4969
ttt aag gtc atg agc ggc gag atg ccc tcc acc gag gac ctg gtt aac Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn 1060 1065 1070	5017
cta ctc cct gct atc ctc tcc cct ggc gcc cta gtc gtc ggg gtc gtg Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val 1075 1080 1085	5065
tgc gca gcg ata ctg cgt cgg cac gtg ggc cca ggg gag ggg gct gtg Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val 1090 1095 1100	5113
cag tgg atg aac cgg ctg ata gcg ttc gct tcg cgg ggt aac cac gtc Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val 1105 1110 1115 1120	5161
tcc ccc acg cac tat gtg cct gag agc gac gct gca gca cgt gtc act Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr 1125 1130 1135	5209
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		Val					Cys					gat Asp)				5353
	Leu					Leu					Gly	gtc Val				5401
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		Phe					Tyr					tgc Cys O				5593
	Ala					Arg					Val	gct Ala				5641
tac Tyr	gtg Val	gag Glu	gtt Val	acg Thr 1285	Arg	gtg Val	ggg	gat Asp	ttc Phe 1290	His	tac Tyr	gtg Val	acg Thr	ggc Gly 129	Met	5689
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			Val					Leu				gct Ala 1325	Pro			5785
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	Pro					Leu					Glu	ctg Leu				5881
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		Asp			gac Asp		Asp					Asn				6073
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					tct Ser					Gln					Glu	6169
				Val	ccg Pro				Leu					Lys		6217
cct Pro	cga Arg	gcg Ala 1475	Met	ccc Pro	ata Ile	tgg Trp	gca Ala 1480	Arg	ccg Pro	gat Asp	tac Tyr	aac Asn 1485	Pro	cca Pro	ctg Leu	6265
		Ser			gac Asp		Asp					Val				6313
	Pro				gcc Ala 1510	Lys					Pro					6361
			Val		ctg Leu	Ser	Glu	Ser	Thr		Ser	Ser	Ala	Leu	Ala	6409
				Lys	acc Thr				Ser					Val		6457
			Ala		gcc Ala			Asp					Asp			6505
		Ser			gag Glu		Tyr					Pro				6553
	Pro				gat Asp 1590	Leu					Trp					6601

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aca ggc gcc c Thr Gly Ala I						Leu Pro	6697
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gct aca aca t Ala Thr Thr S 1650	tct cgc agc Ser Arg Ser	gca agc Ala Ser 1655	ctg cgg Leu Arg	cag aag Gln Lys 1660	Lys Val	acc ttt Thr Phe	6793
gac aga ctg o Asp Arg Leu 0 1665	cag gtc ctg Gln Val Leu 1670	Asp Asp	cac tac His Tyr	cgg gac Arg Asp 1675	gtg ctc Val Leu	aag gag Lys Glu 1680	6841
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gaa gcc tgt a Glu Ala Cys I	aag ctg acg Lys Leu Thr 1700	Pro Pro	cat tcg His Ser 1705	gcc aga Ala Arg	tct aaa Ser Lys 1710	Phe Gly	6937
tat ggg gca a Tyr Gly Ala I 1715	aag gac gtc Lys Asp Val	cgg aac Arg Asn 1720	Leu Ser	agc aag Ser Lys	gcc gtt Ala Val 1725	aac cac Asn His	6985
atc cgc tcc c Ile Arg Ser V 1730	gtg tgg aag Val Trp Lys	gac ttg Asp Leu 1735	ctg gaa Leu Glu	gac act Asp Thr 174	Glu Thr	cca att Pro Ile	7033
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tca tgc ctc agg Ser Cys Leu Arg 2100	Lys Leu Gly				8137
cgg gcc aga agt Arg Ala Arg Ser 2115				Gly Arg Ala	8185
gcc act tgt ggc Ala Thr Cys Gly 2130		Phe Asn Trp			8233
aaa ctc act cca Lys Leu Thr Pro 2145					8281
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gcc cga ccc cgc Ala Arg Pro Arg 2180	Trp Phe Met				8377
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